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Agency

Solid Waste and
Emergency Response
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www.epa.gov/tio
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# Measurement and Monitoring Technologies for the 21st Century

## Background


In recent years, there have been significant technological advances in the areas of chemical constituent identification and quantification, geophysical analysis, and information management. These advances could dramatically improve capabilities to characterize sites, monitor remedial activities, and provide long-term monitoring for closed sites. While more tools are becoming available, little has been done to integrate these new tools into ongoing site investigation and cleanup. In response, the U.S. EPA Office of Solid Waste and Emergency Response (OSWER) is undertaking an initiative coordinated by the Technology Innovation Office (TIO) to advance new systems for monitoring hazardous waste sites.

## Goal

Through 21M², OSWER will identify and deploy promising measurement and monitoring technologies in response to waste management and site cleanup program needs. The initiative will match existing and emerging technologies with OSWER program and client needs through partnerships to research and evaluate new equipment and processes in the field. OSWER will aggressively pursue the transfer of information and lessons learned to professionals in the hazardous waste management and site remediation communities. Through 21M², OSWER is seeking better or less expensive techniques to improve waste program measurement and monitoring needs. OSWER will pursue extensive follow-up that promotes user acceptance and captures actual impacts on program activities.

## Strategy:

OSWER will pursue a three-part strategy:

1) **Defining Needs:** 21M² will consolidate expressed needs and identify future program technology requirements in the areas of site characterization, process control, waste testing, and monitoring.

2) **Gathering Intelligence:** 21M² will research and inventory the state-of-the art for advanced monitoring technologies. This task will establish baselines for both fully developed, commercially-ready (but underutilized) technologies, AND emerging, cutting-edge approaches that require further R&D.

3) **Increasing Understanding and Acceptance of Technology Options:** 21M² will seek out opportunities to showcase promising approaches through further research support, demonstrations, monitored "partnership" applications, case studies, training, and technical outreach.

## Status

TIO is now implementing the 21M² initiative in several areas:

- **EPA Small Business Innovative Research Program (SBIR):** OSWER is working with the Office of Research and Development (ORD) to ensure that waste program monitoring needs supported by 21M² are included in the Fall 1999 solicitation for EPA "SBIR 2000" Phase I research grants (see http://www.epa.gov/ord for more details on SBIR 2000).

- **Technology Deployment:** OSWER is showcasing technologies and methods that are at a field-ready,

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commercial scale of development. These technologies were identified through OSWER programs (including RCRA, Superfund, and Underground Storage Tanks) and will involve the application or further development of a variety of techniques including improved off-site and on-site analytical techniques, innovative subsurface characterization, emissions monitoring, fence-line monitoring, and computer-aided data interpretation.

- **Outreach:** OSWER will develop and report information on program needs, technological advances, and the subsequent acceptance and impacts of program-supported technologies.

- **Technology Search:** OSWER will actively search the literature, Federal agency research programs, and the commercial sector to identify promising technologies.

- **Collaboration:** OSWER has initiated activities to identify and cultivate mutual interests in other EPA program offices (e.g., Enforcement, Air) and technology development and clean-up programs at other agencies, including the Departments of Defense and Energy.

- **Procurement:** OSWER will explore a number of procurement options that will allow interested users within EPA to field promising technologies.

## CONTACT

For more information, or, if you would like to provide input on technology needs, please contact:

Dan Powell
U.S. EPA, Technology Innovation Office
(703) 603-7196
FAX 603-9135
e-mail: powell.dan@epa.gov

Information will be available on-line through the Hazardous Waste Clean-Up Information (CLU-IN) Internet site at:

**http://clu-in.org**